

¹University Clinic of Clinical Biochemistry, Skopje, R. Macedonia;

²PHCI Special Hospital for Hemodialysis and Nephrology, Skopje, R. Macedonia

DIFFERENCES IN HEMATOLOGY AND BIOCHEMICAL PARAMETERS IN DIABETIC PATIENTS

Gruev, T.¹; Janicievic-Ivanovska, D.¹; Jovcevska-Mecevska, J.¹; Dimitrov S.²

Background. This study related to investigated differences in hematology and biochemical parameters in patients with Diabetes Mellitus(type1 and Diabetic Retinopathy and type 2). A direct relation between platelet dysfunction and the development of diabetic complication has yet to be established. Some studies have suggested that the enhanced activation of circulating platelets is particularly apparent in diabetics with microvascular disease.

Methods. In This study was investigated hematological and biochemical parameters in differences between two type of diabetes(type1 N=160;type 1 and Diabetic Retinopathy,N=48 and type 2 N=180) in relation to a control population. Hematological parameters was analyzed In K3EDTA blood used hematological analyzer Sysmex KX-21. The concentration of glucose, HbA1C, Total cholesterol, TG, HDL, VLDL and LDL was determined in Cobas Integra 700 analyzer. The Proptrombin time and fibrinogen concentration are measured in BFTII analyzer.

Results. Our results showed an increased in hematocrit, leucocyte, lymphocyte and monocyte number in diabetic patients, while MCV, MCH(affected of the glucose concentration) and neutrophils number are decrease. Patients with type 1 diabetes showed an increase in erythrocytes, Hct, leucocytes, lymphocytes ($p < 0.05$) and glucose($p < 0.01$) concentration compared with the control. Hematocrit and platelets index (PDW, MPV, P-LCP) are significantly increased ($p < 0.05$) while neutrophils and monocytes are decreased ($p < 0.05$) in patients with type 1 diabetes and AMI in relation with type 2 diabetes. Diabetic patients have significantly higher plasma fibrinogen concentration compared with control group(4.75 ± 0.95 g/L vs. 3.15 ± 1.1 g/L, $p < 0.05$). Significant elevation in total serum cholesterol and LDL-cholesterol levels is observed in IDDM cases. Increased serum Triglycerides and VLDL-cholesterol levels are not statistically significant. Serum HDL-cholesterol levels are significantly decreased.

Conclusions. Our results suggest that platelet hyperfunction in diabetic patients may be implicated in the pathogenesis of diabetic retinopathy. These results established an altered in platelet volume indices in insulin dependent diabetics suggesting that platelets may involve in developing micro and macro vascular complication in patients.